

rect cost of asthma. **METHODS:** Data were drawn from the 2001 Medstat-Marketscan claims database. Medstat is a claims-based database with over five-million members, representing an employed population plus dependents. Individuals with asthma were defined as having at least two outpatient or one inpatient event with a primary diagnosis of asthma (ICD-9 code 493). Direct costs include expenditures for outpatient and inpatient services and prescription drugs. Indirect costs include time lost from work, short term disability and workers compensation. **RESULTS:** The sample included 31,067 individuals with asthma and 385,883 individuals without. Persons with asthma were significantly more likely to have paid absence from work (16.5% vs. 5.2%), and when absences occur, they were 10.9% longer. Similarly, persons with asthma are more likely to receive disability payments (8.6% vs. 2.0%), although the mean payments are not statistically different. Persons with asthma are also more likely to receive workers compensation payments (5.1% vs. 1.5%) which are significantly more expensive (\$7851 vs. \$7073). Overall mean expenditures for inpatient and outpatient care were \$311, the majority attributable to outpatient care (\$207). Inpatient stays were relatively infrequent, although expensive when they occurred with a mean cost of \$4736. **CONCLUSION:** Asthma is a high cost chronic illness in employer populations. Strategies to identify and manage high cost individuals may lead to cost savings. However, asthma is an illness where total indirect costs (\$181) are an unusually higher percentage of the total cost of illness, so much of the economic burden of the illness is bourn directly by employers. This suggests that employer based asthma programs may be appropriate.

PAS8

A DYAD APPROACH TO QUALITY OF LIFE MEASUREMENT IN CHILDREN WITH ASTHMA

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OBJECTIVES: The assessment of health-related quality of life (HRQOL) is an essential component of evaluations of health status, physical functioning, response to treatment and disease progression. The measurement of HRQOL in children with asthma often relies on parents as proxy respondents. Yet, several studies have shown poor to moderate correlations between parent and child responses, questioning the validity of the parent proxy response. This pilot study tests a dyad approach, where parent and child are interviewed together. It was hypothesized that the dyad interview, by bringing parent and child perspectives together, would create a more detailed and accurate picture of HRQOL in children with asthma. **METHODS:** Children clinically diagnosed with asthma aged 8 to 15 and their primary caregivers were recruited from the Hospital for Sick Children Asthma Clinic. Sixteen parent and child dyads consented and were administered the Health Utilities Index Mark II & III (HUI II/III), the Pediatric Asthma Quality of Life Questionnaire (PAQLQ), and the Pediatric Quality of Life Inventory (PedsQL). A qualitative approach was used wherein parents and children were encouraged to discuss each question together. Interviews were audiotaped and transcripts were analyzed thematically. **RESULTS:** Consistent with Grounded Theory methodology, observations were indexed according to a priori and a posteriori categories and subcategories. Theoretical saturation was achieved. The data showed that parents were a valuable resource in overcoming problems associated with inaccurate recall, respondent bias, frustration, psychic discomfort, anxiety and comprehension. **CONCLUSIONS:** A dyad approach provided children with access to their parent as an important information resource, as an enabler and as an extension of the child's cogni-

tive skills. Pilot data suggested that the dyad is more likely to capture multi-factorial aspects of pediatric HRQOL than independent assessments of parent or child.

PAS9

CHOOSING AMONG DIFFERENT TYPES OF MATCHING TECHNIQUES

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OBJECTIVE: The diversity of procedure in pharmaceutical research requires a guideline to choose appropriate matching method. Coherent guidelines for practice are absent. In this paper we evaluate the several matching techniques and provide a guideline to choose the best. **METHODS:** We proposed the following ways to check for the balance: 1) Two sample t-statistic between the mean of the treatment group for each explanatory variables with the mean of these variables in the control group; 2) The mean difference as a percentage of the average standard deviations; 3) Percent reduction bias in means of explanatory variables after matching and initially; 4) Compare treatment and control density estimates for the explanatory variables; and 5) Compare the density estimates of the propensity scores of control units with that of the treated units. **RESULTS:** Medstat Market Scan data used to provide empirical examples. We examined 2 to 1 matching, nearest neighborhood matching (NNM) with replacement, NNM without replacement, MM matching (MM), MM with calibers, stratification method, kernel matching and radius matching. Comparing techniques according to the above criteria yield that 2 to 1 and NNM without replacement provides the worst balance. The difference between the control and treatment variables was significant. To choose among the rest, we estimated the average treatment effect according to each matching procedures and calculated the deviation from the mean of estimated average treatment effect. MM with calibers where calibers is selected as a quarter of standard deviation of estimated propensity score provides least deviation, there this procedure was superior to the others. **CONCLUSION:** Sensitivity analysis of the matching techniques is especially important since none of the proposed methods in literature is a priori superior to the others. The joint consideration offers a way to assess the robustness of the estimates.

CARDIOVASCULAR DISEASE—Angina/Ischemia

PCVI

COMPARISON OF ALTERNATIVE STRATEGIES FOR THE DIAGNOSIS OF ACUTE CARDIAC ISCHEMIA IN EMERGENCY DEPARTMENTS: STANDARD OF CARE VERSUS BMIPP

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OBJECTIVES: This study compared diagnostic accuracy, time spent in the emergency department/chest pain observation unit ("ED/CPU"), medical costs, and litigation risk of alternative diagnostic strategies for acute cardiac ischemia (ACI) in ED/CPU. Rest single photon emission computed tomography (SPECT) with an innovative cardiac imaging agent, BMIPP, was compared to pre-admission standard of care in ED/CPU. **METHODS:** A decision tree model was constructed for alternative diagnostic strategies based on comprehensive literature review and expert panel input. Pre-admission standard of care is a complex scheme involving enzyme tests, ECG, X-ray, and SPECT with other common cardiac imaging agents. Model para-